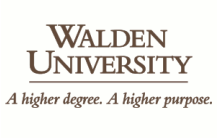

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Low Health Literacy and Preoperative Instruction Compliance Among Patients Undergoing Surgical Procedures

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2017

Abstract

Low Health Literacy and Preoperative Instruction Compliance

Among Patients Undergoing Surgical Procedures

by

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MSN, Excelsior College, 2011

BSN, Liceo De Cagayan, 1991

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2017

Abstract

In addition to cancelations and delays of needed surgical procedures, serious or fatal complications can occur when patients with low health literacy do not comply with preoperative instructions. The purpose of this quality improvement project was to provide more insight about ways to decrease on cancelled and delayed surgical procedures in low health literacy patients' due to noncompliance with preoperative fasting instructions. The project was informed by the reach, effectiveness, adoption, implementation, and maintenance model (King, D. K., Glasgow, R. E., and Leeman-Castillo, B. (2010). The project question centered on whether health literate preoperative fasting instructions could decrease cancellations and delays of surgical procedures in low health literate patients. The project setting was conducted at a doctor's office. Interventions and changes to the preoperative instruction sheet were evaluated by using the preoperative communication checklist (POCC) which was developed for this project study. A 3-month pre-post POCC intervention design was used to evaluate changes in the numbers of cancelled and delayed surgical cases among 30 low health literate patients at a local community physician's office. The Newest Vital Sign which is a health literacy skill level assessment tool developed by Pfizer (2012), was used to assess patient health literacy. 30 (13 women and 17 men) who were aged 17-75 were enrolled. Pre-intervention, the and cancellation rate was 16.67%. Post intervention, there was a zero percent cancellation rate. This project has potential to produce positive social change by empowering patients with health literacy instructions for better understanding of what is being asked of them when having surgical procedures. This knowledge may result in better patient outcomes.

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Section 1: Nature of the Project

Adherence to a fasting regimen protocol by preoperative patients has been an issue for many years now (Cravero, 2015). However, those with low health literacy are often not able to understand instructions and therefore are not able to comply with the necessary preoperative regimen. Health literacy was introduced into health care literature in the early 1990s (Cravero, 2015) but has not become part of mainstream healthcare literature until recently. Modernization in health care and the move for patient health self-management has resulted in focusing on the capability or disability of individuals to comprehend and make informed decisions about their health care (Cutilli, and Bennett, 2009).

Meeting the health literacy demands of society is dependent on understanding patients' health literacy levels. The National Assessment of Adult Literacy (NAAL) provides information about the health literacy abilities/skills of the U.S. population (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2010). NAAL has estimated that 30 million adults struggle with basic reading tasks (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2010). NAAL researchers also found that only 12% of consumers have a proficient health literacy skill level (HLSL). The conclusion was that nine out of ten adults lack the skills needed to manage their health. Limited health literacy (LHL) affected a person's ability to understand health care information and education, locate health care providers and services, fill out health forms, and share personal health information with providers (U.S. Department of Education, Institute of Education

Sciences, National Center for Education Statistics, 2010). The survey conducted by the NAAL showed that there were over 90 million Americans with difficulty comprehending basic health information (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2010).

Health information comprehension started with understanding print information to follow medication instructions, identifying signs and symptoms of diseases, and engaging in self-care behaviors (Pfizer, 2006). The report from Pfizer (2006) mentioned four health literacy (HL) levels: low basic level, basic level, intermediate level, and proficient level (Pfizer, 2006). The population with the low health literacy (LHL) skill level was the focus of this project to assure their safety while seeking health care. The author excluded other subjects with basic, intermediate, and proficient levels.

There was a need to put emphasis on the preoperative instructions particularly the fasting regimen due to the risk of aspiration. According to the American Society of Anesthesiologists (2011), preoperative fasting is the designated length of time prior to a procedure when patients should not have any oral intake of food or liquids. These practice guidelines were recommended to decrease the occurrence of perioperative pulmonary aspiration (or, aspiration of gastric contents; Pfizer (2006). Pulmonary aspiration is the most serious complication associated with use of medications to sedate or place patients under general anesthesia (Pfizer, 2006). Therefore, noncompliance with the fasting regimen may lead to complications or death (Agency for Healthcare Research and Quality, 2011). The author also stated that there was a relationship between patients who could not maintain the fasting regimen and low health literacy skill level, translating

to an alarming rise in the number of cancellations and delays in the perioperative areas. The author noted that the delays lead to a negative effect on the efficacy of the perioperative department, and patient throughput (Wong, Khu, Kaderali, & Bernstein, 2010). A delay in starting the first case would cause a domino effect resulting in subsequent delays that greatly affects patient flow and resource utilization. To improve patient safety and decrease the number of cancelled or delayed scheduled surgical cases, it is necessary to develop best practices and patient education to improve patient outcomes (Whong, Khu, Kaderali, & Bernstein, 2016). This aim can be accomplished through the provision of health literate preoperative instructions such as nothing per orem (NPO) guidelines, according to Whong, Khu, Kaderali, & Bernstein (2010). This was the focus of the project.

Background

In this project, I focused on the effect of low health literacy and preoperative instruction compliance. There is a link between post-operative complications and poor compliance of preoperative health teachings or instructions provided to surgical patients. It was imperative to provide emphasis on the preoperative health instructions to patients to avoid situations such as delays, cancellations, or postoperative complications due to noncompliance of preoperative instructions. It was important to understand the level of the patients' health literacy in the American setting. The first level was the low basic, which was the ability of an individual to identify and correctly circle the date of a medical appointment on a hospital appointment slip. Fourteen percent of the population belong in this level (Pfizer, 2010). The second level was basic where the individual can

provide two reasons a person without any symptoms of a disease needs to be examined; 22% of the population fell under this level (Pfizer, 2010). The third level was intermediate in which an individual had the capacity to understand a prescription drug label. Fifty-three percent of the population was among this level (Pfizer, 2010). The last level was the proficient level where the individual could calculate an employee's share of health insurance costs for a year using a table that shows how the employee's monthly cost varies depending on income and family size. Only 12% of the U.S. population had the health literacy to rise to this level (Pfizer, 2006). I used these definitions of health literacy to identify individuals with LHL skill level for inclusion in the project.

Problem Statement

Serious or fatal complications can occur when patients do not comply with preoperative instructions due to LHL. Health care providers understood that there is a need to emphasize appropriate preoperative health teachings or instructions to patient populations who have low or LHL skill level (Pfizer, 2010). LHL is a nationwide problem that affects patients' ability to understand health related information or instructions. Preoperative instructions are important and essential for patient compliance before they can undergo a needed procedure or surgery (Pfizer, 2010). It is important that patients comply with pre-operative instructions to avoid health related complications. Patients have difficulty complying when they had LHL levels and/or the information had not been presented to them according to their HL level. Therefore, the author evaluated whether identifying those with LHL and providing health literate pre-operative

instructions, especially regarding the fasting requirements, could improve cancellations and delays of procedures.

Many patients cannot comprehend the instruction sheets, medication discharge documents, and consents given to them by health care providers due to low HL (Andrus & Ruth, 2002). Therefore, patients are not able to use this information to improve their health or comply with given instructions. When patients do not adhere with fasting regimen, may face serious complications such as aspiration leading to death (Andrus and Ruth, 2002). If patients having LHL level cannot understand preoperative instructions, they may not be able to comply with recommendations and have needed treatments. I sought to address this problem of noncompliance with preoperative instructions of fasting due to LHL through the development of a universal health literate preoperative instruction sheet.

Communication is one of the most powerful tools in health care. One of the problems in the health care industry is the mismatch between a health care provider's level of communication and a patient's level of comprehension (Weiss, 2007). Results of research studies show that patients sometimes misunderstood health care providers (Weiss, 2007). There is a need to address the gap in health care knowledge through appropriate communication that is equal to the patient's understanding (Weiss, 2007). Communicating a broad range of health messages to a wide variety of audiences can be challenging (Weiss, 2007). Differences among audiences make it necessary to avoid the one-size fits-all mindset when developing effective health communication materials

(Weiss, 2007). Culture and literacy skills are two important factors to consider when designing health communication materials that will enable understanding (Weiss, 2007).

Purpose and Objectives

The purpose of this project was to reduce cancelled or delayed surgical procedures due to LHL patient noncompliance with preoperative fasting instructions. The objective was to provide health literate pre-operative instructions to LHL surgical patients. The goal of the project was to determine whether health literate preoperative instructions regarding a fasting regimen among LHL preoperative patient would decrease cancellations and delays of patient procedures. The author developed a HL preoperative instruction sheet for use in the delivery of the preoperative fasting instructions to patients identified as having LHL. The compliance of the preoperative patients to the fasting regimen was measured by the number of cancellations or delayed scheduled cases due to noncompliance with the fasting instructions pre-and post-implementation of the LHL preoperative instruction sheet. The project consisted of developing the tool based on low HL level. This tool consisted of an instruction sheet with images, a larger font size for easy reading, and clear phrases making the instruction sheet clear so the patient with a LHL level can comprehend). The author conducted an HL assessment of the surgical patient using the health literacy assessment tool called preoperative communication checklist (POCC; Pfizer, 2010). Patients were assessed for their health literacy level. Those who were identified with LHL were provided with the LHL preoperative instruction tool. Patients not showing LHL were given the standard instructions. The subjects identified with LHL were invited to participate on voluntary basis. The POCC

tool was used during the preoperative phase including instructions with emphasis on fasting. The goal was to decrease the delay and cancellation rates of patients with LHL.

Project Question

Health literacy is an important factor to assess and consider when providing preoperative patient instructions and education. LHL can cause a patient not to understand instructions and can lead to serious complications or cancellations of needed surgical procedures (National Institutes of Health (2014). The author asked whether health literate preoperative instructions could decrease the number of cancelled or delayed surgical procedures. The literacy level of a patient is directly correlated with whether the patient understands the preoperative instructions. Non-adherence to a fasting regimen is a main cause of surgical cancellations (National Institutes of Health, 2014). The author chose this quality improvement project to assess the effectiveness of health literate patient instructions.

Significance/Relevance to Practice

Improving health literacy is an important nursing practice issue. It is especially relevant given that nurses provide most of the patient information and education given to patients (National Institutes of Health, 2014). According to the National Institutes of Health (2014), it is important to be proficient with the health literacy skills and strategies in improving health literacy because it leads to longer life, enhanced quality of life, reduction of both chronic disease and health disparities, as well as cost savings. Weiss (2007) noted that clinician-patient communication is an important factor in HL since good communication is vital for a successful clinician-patient relationship and effective

exchange of information. Barriers in communication can result in poor health outcomes (Weiss, 2007).

Weiss (2007) recommended six steps to help improve effective communication with patients. The first step involves communicating in a slowdown pace, using words that are plain and non-medical terminologies. The next step involves showing some diagrams or pictures to visualize the information that is provided to the patient, which can help improve patient recall of the ideas being implied. The next step is to limit the amount of the information given and repeat the information provided for reinforcement where the information is recalled the most when it is given increments. The fifth step is the teach-back technique where the patient confirms that understanding of the instructions by asking them to repeat back the information given. The last step is to establish a shame-free environment thereby empowering the patients to voice out any concerns or issue they might have. These steps can lead to effective nurse-patient communication and can help to bridge the gap in health literacy (Weiss, 2007).

Improving HL is supported by the Institute of Medicine's (IOM) 2004 report which raises awareness of the 90 million people in this country that have difficulty understanding education and information received from their provider and understanding what actions they should take after receiving this information. The IOM discusses the impact of LHL on patients, providers, and the healthcare system and recommends reducing the negative impact on LHL by gaining understanding of the HL level of patients and communicating to them on a level they can understand, thereby serving to improve the patient's HL and ability to make sound, informed decisions about their

health and health care. In alignment with these ideals, the focus of this quality improvement will first assess HL and then deliver HL appropriate instructions to the pre-operative patient to decrease cancelled procedures and perhaps ultimately, to increase patient safety. Using a tool such as the POCC tool will enable nurses to meet HL needs of the patients and if successful this project can be expanded to other surgical areas with similar population of LHL patients (Andrus and Roth, 2002). In conclusion, it is important that nurses develop to assess HL and deliver programs that identify effective methods to decrease the negative outcomes of having LHL.

Evidence-Based Significance of the Project

Singleton & Krauss (2009) noted that the new generation of nurses is rendering the education, care, and case management to a diverse patient population of varying culture, language, and health literacy issues. The authors also stated that culture and language control how patients understand health literacy skills and it is important to address these changing demographics to ensure that all patients have an adequate HL level. Nurses, such as the DNP, can assist in linking patient culture, language, and HL for better health outcomes via quality improvement projects. Joint Commission (JC) (2007) added that LHL, cultural barriers, and limited English proficiency are the triple threat to effective health communication. The nation's population is increasingly diverse, and nurses who work with patients from diverse cultural groups realize how LHL, cultural barriers, and limited English proficiency pose a risk in the delivery of safe patient care at the system, provider, and patient levels (Singleton & Krauss, 2009). LHL and cultural barriers are being addressed in nursing and are worthwhile pursuits to improve patient

outcome. Evidence supporting focus on health literacy is also provided by the IOM. In their ongoing assessment of progress in improving HL based on their 2004 report, *Health Literacy: A Prescription to End Confusion*, the 2014 annual report (IOM, 2014) states that healthcare providers and institutions now recognize the importance of improvements in health literacy's relationship to improve overall health of our population. They support development of model programs and research into sustainable programs to address improvements in patient's HL levels. Additionally, support by the Agency for Healthcare Research and Quality (AHRQ) released a report in 2004 stressing the association of literacy and health outcomes, and supports development of programs to address LHL (AHRQ, 2004). HL has been declared the sixth vital sign and is drawing attention because of the increasing issues in healthcare related to poorer outcomes in those with LHL (Heinrich, 2012). Improved communication through assessing the HL level of our patients is necessary in all practice settings due to the pervasive nature of LHL in our patient population.

Implications for Social Change in Practice

Almost half of all people in the US have problems understanding and making decision for their care based upon insufficient HL Level (IOM 2004). Cornette (2009) stated that the National Institute for Literacy (NIFL) views literacy to involve not only the individual's ability to read but also the ability to understand. NIFL defined literacy as the capacity of an individual to read, write, speak in English, compute, and solve problems, at levels of proficiency important to function on the job. Cornette (2009) added that the Healthy People 2010 adopted a broad definition of literacy which definition is the

degree to which individuals can gather, synthesize, and comprehend basic health information and services imperative to make justifiable health care decisions. Addressing HL has great potential for positive social change for society due to the improved understanding of information and the improved understanding of how to interpret this information and take well-informed health care actions. Vernon, Trujillo, Rosenbaum, and DeBuono (2007) stated that tackling the issue with LHL could produce big savings and better health. The two pillars of appropriate healthcare are coverage and access. The problem with the lack of steady healthcare coverage and reliable healthcare access can lead to LHL (Vernon, Trujillo, Rosenbaum, and DeBuono, 2007).

Vernon and colleagues (2007) added that recent studies noted the link between the LHL among U.S. adults and health outcomes with increased medical expenditures. LHL is ranked at a crisis level, which has been recognized in a thorough process by the National Assessment of Adult Literacy (NAAL) health literacy survey and analysis. Public policy holds the key in targeting LHL and its consequences (Vernon and colleagues, 2007). Furthermore, the failure to resolve high costs in terms of individual health, healthcare spending, and the economic well-being of the nation is a must since its adverse effects will result in massive waste or inappropriate distribution of dollar expenses. Addressing the HL problem also tend to resolve issues with several important policy directions for reducing the economic, social, and health burdens of literacy in general (Vernon, Trujillo, Rosenbaum, and DeBuono, 2007).

Other positive social change form improving HL can come in the form of resource savings as improving HL can decrease unnecessary use of health care resources

and improves patient's self-care ability, leading to improved healthcare of the population. Baur (2009) noted that the National Action Plan to Improve Health Literacy is a framework that nurses can utilize to identify and address HL barriers that affect patient care and health outcomes. The nurse has a unique relationship to HL because nurses are on the front lines of patient care, being with patients more than any other healthcare provider. The Action Plan is a call to action for all healthcare providers especially nurses, to choose, implement, and evaluate HL strategies so that patients will be more informed and be prepared to protect, promote, and manage their health leading to increased patient safety (Baur, 2009). Therefore, the project produced positive social change by assisting how individuals value health through taking charge of their own health needs through improved HL.

Definitions of Terms

Surgical patients and perioperative patients: Any individual that will undergo any surgical procedure will be used interchangeably for the DNP project (Liebner, 2015).

Surgical: Any procedures that will be done in the perioperative area including the OR, Endoscopy suite, and doctor's office (Spencer & Edmiston, 2014).

Health care: The industry that deals with the provision of care to those individuals whose health status is compromised (Meyers, 2015).

Health care personnel and the word *health care team members* and *healthcare givers*: A group of professionals who work in the healthcare industry whose main goal, is taking care of the surgical patient (Thompson et al., 2014).

Preoperative: The phase before a procedure starts. It starts when the plan for a procedure is initiated up to before the patient comes to the operating room (Renew, Bolton, Alvarado, & DeRuyter, 2015).

Perioperative: The period in which the surgical patient is under the care of the perioperative team. It starts from the preoperative phase, which can be in the doctor's office or the pre-surgical testing area, to the intraoperative phase, which could be the operating room or the doctor's procedure room, and the postoperative phase, which is the post anesthesia care unit (Renew, Bolton, Alvarado, & DeRuyter, 2015).

Perioperative team: The group of professionals in the healthcare industry led by the physician, the registered nurse (RN), the nursing ancillary staff, the anesthesia department, the nursing administration, hospital administration, and other hospital departments that provide healthcare services to the patients in need of healthcare (Renew, Bolton, Alvarado, & DeRuyter, 2015).

Health literacy: The degree to which patients have the capability to process, gather, and comprehend basic health information and services required to reach the right health choices (National Network of Libraries of Medicine, 2013).

Nothing per orem (NPO): The instruction that a patient should have nothing per mouth the midnight prior to the scheduled surgical procedure up to the time of the scheduled procedure (Marsh, Webster, & Osborne, 2014).

Preoperative checklist: A document or list of instructions that is utilized as a guide by the RN when giving the preoperative instructions prior to the scheduled procedure (Buzink, van Lier, de Hingh, and Jakimowicz, 2010).

Patient safety: The patient is safe from harm by making sure that the patient maintained his or her NPO status as instructed (Ulrich & Kear, 2014).

NPO regimen: NPO instructions start on the midnight, which is the beginning of the day of the procedure extending to the time of the procedure (Brady, Kinn, Stuart, & Ness, 2003).

Assumptions

It was assumed that the instruction sheet POCC was accurate to determine the subjects HL skill level. The tool assumed that patients better understood the preoperative instructions and were willing to have their HL assessed. The project assumed that all patients regardless of the HL level spoke different languages. English and Spanish were the two primary languages chosen for the project. It was assumed that using pictures and language appropriate wording on the instruction sheet would aid in patient understanding. Some of the challenges encountered include engaging with non-English speaking patients. It was imperative to use hospital interpreters and engaged the next of kin who were with the patient at the time of the visit. U.S. Department of Health and Human Services (n.d.) enumerated steps when applying plain language to assist adults to comprehend health information. The steps were reviewing plain language and HL terms, describing writing and speaking plainly, dispelling the myths of plain language and LHL, discussing certain communication barriers that the plain language alone cannot overcome, and summarizing the evidence on the plain language (U.S. Department of Health and Human Services, n.d.). It was assumed that these strategies would be effective in meeting LHL patients in their level of understanding of the preoperative instructions.

Scope and Delimitations

The focus of the project was on the appropriate provision of the preoperative health instructions prior to any surgical procedure. To achieve the focus of the project, the healthcare provider performed an assessment of the surgical patient's health literacy skill level to utilize the correct approach in providing instruction sheets and verbal instructions in a skill level that the surgical patients could comprehend. In so doing, the healthcare provider helped achieve patients' increased compliance with the preoperative health instructions. The patient population were those scheduled for surgical procedures on an elective basis. There was no specific gender or age limitation to consider. The patients' primary language was English and Spanish. The tool for the project was developed in both English and Spanish.

Limitations

The patient population chosen for this project included those who spoke either English or Spanish. The limitations considered for the project were using the tool that was only prepared in English and Spanish language as the forms available to conduct assessment on their health literacy skill level were written and published in English and Spanish only. The project utilized small sample size and was conducted at only one practice site, which were limitations for the project. Another limitation was using the convenience sample and the limitation in generalization and inference making about the entire population. The sample was not representative of the population; therefore, the results of the study were not able to reflect the entire population resulting to a low external validity of the study.

Summary

It was important that an assessment was conducted to determine the health literacy skill level of patients when delivering education and preoperative instructions. Cunningham (2001) stated that to empower patients is the foundation of health promotion doctrine. The patients were the ultimate decision-makers about their health. The time the healthcare providers spend with them discussing health literate instructions, information, and education empowers patient with the knowledge to decide the fate of their health. The surgical patients expect to receive appropriate information at a comprehension level that they can understand. Cultural awareness is the epitome and the heart of HL (Cunningham, 2001). The healthcare provider needs to assess the ways of measuring the depth of the patient's HLSL. There is a danger of an untoward event to occur if a patient cannot comprehend the impact of his or her diagnosis against the inability to access healthcare services due to communication problems (Cunningham, 2001). One untoward event experienced by individuals with LHL skill level is poorer health outcomes (JC, 2007). The JC's accreditation standards underscore the fundamental right and need for patients to receive information both verbal and written regarding their care in a way in which they can fully comprehend the new information (National Network of Libraries of Medicine, 2013). Section 2 will continue with a review of the scholarly evidence to support this project to assess HL to improve delivery of HL preoperative instructions to the surgical patient. The RE-AIM model will be explored in relation to foundational support of the project and by using this method to assess the effectiveness of the program.

Section 2: Background and Context

Introduction

LHL is prevalent throughout society and may result in poor understanding of health care information, recommendations, and health care decision-making. The author addressed the problem of noncompliance with preoperative instructions of fasting due to LHL through the development of a universal health literate preoperative instruction sheet. The purpose of this project was to decrease cancelled or delayed surgical procedures due to LHL patient noncompliance with preoperative fasting instructions. A HL preoperative instruction sheet was developed for use in the delivery of preoperative fasting instructions to patients identified as having LHL.

The JC (2007) noted that LHL, cultural barriers, and limited English proficiency are threats to effective health communication. Culture affects how people communicate, comprehend, and respond to health information (JC, 2007). The effort to improve quality, reduce costs, and reduce disparities is not reachable if there is no effort to improve HL. Ineffective communications place patients at greater risks of preventable adverse events. HL is not only focus on disseminating knowledge; it also encompasses the building of skills to be able to understand written health materials (Nutbeam, 2006). When an individual has access to health information and has the capability to use the new information effectively, he or she can be more empowered regarding health. Evaluation of health literacy abilities show that many Americans with the greatest health care needs have the least ability to comprehend written information required to navigate and function in the U.S. health care system (Parker, Ratzan, & Lurie, 2014). Health care disparities are increasing due to increases in the numbers of sicker, older, and more

vulnerable groups (Parker, Ratzan, & Lurie, 2014). Healthcare providers understand that there is a need to emphasize appropriate preoperative health teachings or instructions to patient populations who have low or limited health literacy skill level (Parker, Ratzan, & Lurie, 2014). LHL is a nationwide problem that affects patients' ability to understand health related information or instructions and will therefore be targeted in this program (Parker, Ratzan, & Lurie, 2014).

In this section, I will describe the literature search strategy I used the evidence to support this project. In the general literature review, a discussion of HL and the presentation of providing HL information to patients, followed by what it means to have LHL and how LHL is related to the surgical arena. Following this content is an introduction to the POCC tool the author used to deliver HL preoperative instructions at my project setting. In the Specific Literature review, HL is further explained, and there is discussion as to the extent of the responsibility by the health care workers for delivering HL information to providers and healthcare facilities. A discussion of the HL assessment tool, the newest vital sign, is presented, along with an explanation of the three types of HL levels. I also consider how culture affects communication. The section ends with an overview of how HL instructions are used in the operative theater to prevent cancellations or delays in the operating room.

The library databases and search engines used in the review literature includes the nursing and health databases utilizing the CINAHL Plus. Also, the author utilized the Full Text database through the Walden Library Home which has cumulative Index to Nursing & Allied Health Literature (Laureate International Universities, 2013). Key

search terms used for the project included words that pertain to patients scheduled for procedures and surgeries. Boolean search terms included surgical patients, fasting regimen, patient safety, health teaching. I retrieved at least 30 articles and eventually used most of the articles, which concerned issues such as health literacy, patient's health literacy level, and cancellations or delays in the operating room. The scope of literature review in terms of years search expands from 2003 to present time which reflects landmark literature to support the project. The types of literature search involve current peer-reviewed literature to support the topic of improving HL.

General Literature

Health literacy is defined as the degree to which individuals can obtain, process, and comprehend basic knowledge and services significant to make adequate decisions regarding their health (National Academic of Sciences, 2014). HL is also the measurement of reading skills, writing, listening, speaking, arithmetic, and conceptual knowledge of anything health related materials (National Academic of Sciences, 2014). Patients with LHL tend to have poor compliance level with their preoperative health teachings. The preoperative instructions are vital to the success of the postoperative stage. If the patient is noncompliant to the preoperative instructions due to inadequate HL level, the healthcare provider needs to address the situation by adequate assessment of the HL skill level of the surgical patients so that the appropriate level of instructions will be applied.

There is a significant urgency for individuals to be more proactive in making health care decisions especially when it involves access to health information and HL

skills to understand such information (Mårtensson and Hensing, 2012). Schardt (2011) stated that HL pertains to the ability of clients to comprehend the medical information their healthcare providers offer them. The author noted that the HL skill level (HLSL) of the patients is measurable and can result in level appropriate HL information, enabling patients to make informed health care decisions. Quality information is necessary for improved health. It is important that the patient have the capacity to understand the health information they receive from the healthcare providers.

Millions of Americans do not have the necessarily skills to understand and utilize our health care system. Healthcare is complicated and it requires patient to assume a more proactive role in self-care. One of the current issues is that many adults cannot comprehend much of the healthcare material they receive. More than half of all American adults are not able to understand the health information resulting to inability to make informed health decisions. LHL skill level affects health behaviors, health decisions and health outcomes. A study conducted by Ross (2013) mentioned that 54% of the United States' population has intermediate HLSL. These individuals can look at a document to determine at what age children should get vaccines, look at a graph to determine the height and weight for body mass index, and determine what time to take a medication by reading a prescription label. The author explains that this 54% population has a higher understanding of any health information provided to them. There is a need for a procedural area such as an operating room to focus on preventing postoperative complications including aspiration leading to serious injury and death (Wong, Kho, Kaderali, and Bernstein, 2010). Fasting before anesthesia provision helps to lower the

volume acidity of stomach contents intraoperatively thereby avoiding the risk of aspiration. There have been some developments with guidelines regarding fasting policy from the standard nothing per orem (NPO) approach to more flexible regimens that allow a certain period of restricted fluid intake up to a few hours before surgery (Brady, Kin, and Stuart, 2004). Patients may be more compliant regarding their preoperative instructions when they comprehend the logic behind such instructions. When patients understand the healthcare recommendations and instructions, their HL is increased. This is especially important when patients undergo surgical procedures, as patients must be on NPO for at least eight hours prior to the procedure.

Wong, Kho, Kaderali, and Bernstein (2010) stated that delays frequently occur in the procedure area that leads to a major effect on patient throughput and resource utilization due to low health literacy. Thorough documentation of perioperative delays can offer a basis for the formulation of strategies to improve perioperative department's workflow. The authors suggest that a quality improvement program would increase efficiency of the workflow in the department and help understand the causes of operating room (OR) delays across surgical disciplines. A delay in starting the first case can result in subsequent delays that greatly affect patient flow and resource utilization. It is imperative to document thoroughly any cause of perioperative delays as a base for finding solutions to improve OR efficiency and illustrates the principles underlying the causes of OR delays across surgical disciplines. LHL and patient compliance are factors in such delays and should be further explored.

Andrus and Roth (2002) noted that preoperative patient health literacy can be improved through clear and appropriate communication that is level appropriate and culturally sensitive by utilizing a preoperative communication checklist (POCC) so that the patients can understand the healthcare instructions given to them. This is accomplished using a health instruction/ reading material that is health literate appropriate for the patient's HLSL (Andrus and Roth, 2002). It is important to study the prevalence of LHL, which is associated to poorer health status leading to a higher risk of dying (Agency for Healthcare Research and Quality, 2011). LHL adversely affects mortality and quality of life (National Academy of Sciences, 2014). Patients with LHL may not understand treatment options; therefore, some patients may not receive treatments that best meet their needs. There are also individuals that are highly educated with strong reading and writing skills that will have trouble understanding a medical form or doctor's instructions regarding a drug or procedure (National Academy of Sciences, 2014). Informed consent documents may be too complex for many patients, and consequently, patients may make suboptimal decisions about accepting or rejecting interventions. Recent study reported that more than 75 million English-speaking adults in US have LHL (Agency for Healthcare Research and Quality, 2011) resulting to the inadequate comprehension and use of basic health information. There is also correlation between LHL in adults, regardless of age, and increase in incidence of frequent use of hospital emergency rooms and inpatient care (Agency for Healthcare Research and Quality, 2011). Individuals with LHL are more likely to be hospitalized and have poorer healthcare outcomes. Therefore, this project will address improving health literacy with

preoperative instructions. Ross (2013) added that there is about 22% of the United States (US) population whose HLSL is basic which means that they can state during the teach-back session whether a person with no symptoms should be tested for a disease based on reading a simple pamphlet. Ross (2013) added that those individuals with below-basic HL constitute the remaining 24% of the US population. The focus of the project is geared towards the third population group where there is a need to improve the HLSL to promote and maintain safety. It is important to address the HLSL of individual patients because communication is an integral part of the effective delivery of health care (Weiss, 2007).

Specific Literature

HL as defined by IOM is the extent that people can gain and understand health care information and services by which they can make informed health care decisions (IOM, 2004). HL also extends to the healthcare workforce and facilities in their ability to effectively communicate to the patient. Healthcare workers, such as nurses, are partners in the transmission of health care knowledge and understanding to the patient. The term HL has been used in the health literature for at least 30 years (Nutbeam, 2006). However, HL was considered a new concept in health promotion in the early 2000s. Today, HL is recognized as an important element of patient care and has been denoted as the sixth vital sign due to the prevalence of LHL throughout our society. It is therefore important to have a quick and efficient way to assess patient HL in every clinical practice setting (Heinrich, 2012). The Newest Vital Sign is an assessment tool to identify those with LHL that is quick and easy to use, taking less than 3 minutes to deliver. The tool evaluates

patient's literacy skill using numbers and words and has been validated compared to another, more lengthy health literacy screening tool, the Test of Functional Health Literacy in Adults (TOFHLA), and is designed to improve provider to patient communication to increase compliance and ultimately improve health outcomes. Health education through appropriate comprehension is geared towards improve health literacy. HL not only focuses on disseminating knowledge; it is also the building of skills to be able to understand written health materials (Nutbeam, 2006). When an individual has access to health information and has the capability to use the new information effectively, it leads to individual empowerment over their health. Individuals with LHL skill level have a barrier to receiving health education resulting in increased costs to the healthcare industry through noncompliance with healthcare instructions and lack of informed health care decision-making.

Nutbeam (2006) stated that there are three types of HL. The first type is basic/functional literacy where an individual has enough basic skills in reading and writing to be able to function effectively in everyday situations. The second type is communicative/interactive literacy where the individual has more advanced cognitive and literacy skills to retrieve information and get meaning from different kinds of communication, and eventually apply new knowledge to emerging situations. The third type of HL is critical literacy, which is the more advanced cognitive skills, which is applicable to analyze information to have greater control over life events and situations. It is imperative to elevate the level of the critical consciousness of those individuals with LHL skill level so that action can be taken to improve comprehension. HL, which is at

the intersection of health and education, involves more than reading ability. Studies of health literacy abilities show that many Americans with the greatest health care needs have the least ability to comprehend written information required to navigate and function in the U.S. health care system (Parker, Ratzan, and Lurie, 2014). It is important to offer assistance to those who need help when it comes to understanding health related written information.

Culture is an important aspect in understanding and delivering HL information. Joint Commission (JC) (2007) noted that LHL, cultural barriers, and limited English proficiency are barriers effective health communication. It is important that healthcare workers realize how culture affects communication and that it has an integral part in communication to assist in better understanding one's HL level. A significant factor to consider is that HL is affected by belief systems and communication styles. The United States Department of Health and Human Services (HHS) realizes that culture affects how people communicate, comprehend, and responds to health information (JC, 2007). Patients need to verbalize their health concerns and describe their symptoms appropriately by asking questions, but LHL makes many not be proactive regarding their health. The surgical patient also needs to comprehend spoken medical advice or treatment directions to understand his or her health condition (JC, 2007). The current trend in the healthcare industry is the empowerment of the patients where patients require strong decision-making skills. HL is a necessary skill of all patient, it is a universal need.

HL is a described as a systems problem denoting the complexity of both the presentation of health information and navigation of the health care system (JC, 2007).

The Institute of Medicine (IOM), 2004, stated that the effort to improve the quality, reduce costs, and reduce disparities is not reachable if there is no effort to improve HL. Ineffective communications place patients at greater risk of preventable adverse events. There is an issue concerning patient safety when there is LHL in tackling healthcare information. Parker, Ratzan, and Lurie (2014) noted that active, health-literate consumers are able to access online information while the those patients with LHL are left in the dark with the digital divide and are unable to function as informed healthcare consumers. The current trend with technological advancement makes the healthcare disparities wider, being that disparities will be larger for sicker, older, and more vulnerable groups (Parker, Ratzan, and Lurie, 2014). Improving HL in these groups is especially important. Dreger and Trembeck (2002) noted that more than 90 million Americans have LHL skills in which almost two million US residents do not speak English, and millions more speak it poorly. There is a stigma felt by some patients who are illiterate or the unable to speak a country's predominant language, which leads to patients revealing their limitations (Dreger and Trembeck, 2002). It is imperative to realize as a healthcare provider, that some patients who speaks a language other than English will reveal their limitation is an important first strategy in improving health education for this vulnerable population (Dreger and Trembeck, 2002). Healthcare providers need to adapt to various ways like proper assessment of the HLSL in providing teaching techniques to patients' special needs to make sure that patients understand their health problems and plan of care.

Out of the ninety million Americans who have limited literacy, 15 percent were born outside the country (Parker, Ratzan, and Lurie, 2014). The majority of adults with

poor literacy are white, native-born Americans (Parker, Ratzan, and Lurie, 2014). The influx of non-white Americans is on the rise due to better working conditions and the opportunity to a better life leads to an increase of minorities with LHL skill level. Language differences, cultural barriers, and different educational opportunities increased the number of growing populations of minorities with LHL skill level (Parker, Ratzan, and Lurie, 2014). The problem with LHL skill level is a concern for all races, which is not limited only to white native-born Americans, but to all Americans. Patients who are not able to comprehend very well with their plan of care will not be able to comply with instructions, leading to experience unnecessary complications like aspiration, coma, and death (Dreger and Trembeck, 2002). Dreger and Trembeck (2002) added that health care providers who can communicate with their patients through LHL patient education materials and with the use of qualified interpreters resulted in improving the quality of care for their patients and the resulting outcomes.

Cancellations of scheduled cases are on the rise in the current health care industry where it is imperative for the healthcare team members particularly to conduct routine intervention such as proper patient education regarding preoperative fasting regimen (St. Jacques d Higgins, 2004). It is highly important that the healthcare team put emphasis on the importance of maintaining the NPO status of the perioperative patients. There is a need to address the current issue because canceling or delaying scheduled cases lead to patient dissatisfaction, unnecessary overtime for the staff, and underutilization of the procedure rooms (St. Jacques d Higgins, 2004). It is noted that delays in the perioperative areas result to a negative effect on its efficiency, the working environment, and patient

throughput (Wong, Khu, Kaderali, and Bernstein, 2010). A study done by Kramer (2000) recommends that healthcare workers provide patients with the reason for the preoperative NPO orders to elevate the patient's understanding of the importance of maintaining the fasting regimen.

Noncompliance with NPO status is still the number one cause for patient safety issues leading to the delays of elective surgical procedures, decrease in the efficiency of the ambulatory surgery unit (ASU), and healthcare dollars waste (Kramer, 2000). In addition, Kramer (2000) stated that there is a significant difference when there was an analysis on the perception of how important it is to maintain NPO status.

Ross (2013) stated that after the plain language discussion with the patient, the healthcare provider would test the patient’s retention of the instructions provided using the teach-back method. The teach-back method will assist the patient to tell the healthcare provider in his or her own language what he or she heard in the discussion. If the patient explains incorrect information, the healthcare provider has not presented the information in a manner that is adequate (Ross, 2013). Ross (2013) recommends that the healthcare provider needs to revise another way to deliver the instructions to the patient. The method can be in different words or diagrams to relay the message making sure that the patient gets the information. Ross (2013) added that the patient is provided with teaching pamphlets to assure to meet the health literacy needs. It is also imperative to avoid using medical terminology to avoid confusion. Looking at terms regarding colorectal cancer screening, patients with low health literacy tend not to understand terms such as colon, polyp, growth, lesion, and tumor.

Ross (2013) emphasized that all written materials should be at an eighth-grade level or even advocate for a sixth-grade level. This reading level can easily be checked using Microsoft Word's Flesh-Kincaid method on a Word document. The addition of pictures with simple text can make the message even clearer. Additionally, the health care provider may be able to notice cues, as many people are embarrassed to ask questions to their healthcare providers. Some of the cues include patients who do not read any forms while at the interaction, turning in incomplete forms, stating that they will complete or read the forms at home, or patients who are unable to assume the role of self-management successfully (Ross, 2013). Therefore, it is imperative that the nurse can pick up these signals. It is also important to get the patient the information that they need in a nonthreatening manner while establishing trust.

Conceptual Models and Theoretical Framework

The project adapted the pattern Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) model to evaluate policy interventions and changes (King, Glasgow, and Leeman-Castillo, 2010). The RE-AIM framework enhanced the impact of health promotion interventions through evaluation of the dimensions considered most relevant to real-world implementation. King, Glasgow, and Leeman-Castillo (2010) added that the reach dimension of the framework focused on the percentage and characteristics of individuals receiving the intervention. The effectiveness focused on the impact of the intervention, including anticipated as well as unanticipated outcomes. The adoption targeted the percentage and representation of settings that adopted the intervention while implementation was about the consistency

and cost of delivering the intervention. The last piece was maintenance, which referred to long-term sustainability at both the setting, and individual levels.

The project followed the RE-AIM model (King, Glasgow, and Leeman-Castillo, 2010) for implementation where the process started with identification of the target population whose health and health behavior could benefit from the project. The next step was identification of the desired health or behavioral outcomes. The third step was the identification of the key stakeholders to make sure that the project was designed to fit the target population. The fourth step with the model was the identification of the standards and guidelines including assessing to minimize unintended consequences. The last step for the project model was the identification of the agencies or groups that monitored and maintain the outcome of the result of the project (King, Glasgow, and Leeman-Castillo, 2010).

Since the focus of the model RE-AIM was health promotion interventions through evaluation of the dimensions based on the most relevant to a real-world situation, the project was geared towards developing the POCC tool to adapt when some patients would not comprehend with the instruction and could not comply with the fasting regimen. This event in turn would put patients at risk for post-op complication like aspiration leading to coma and death.

Summary and Conclusion

Cancellations of scheduled cases are on the rise in the current health care industry. It was imperative to conduct routine intervention such as proper patient education regarding preoperative fasting regimen (St. Jacques d Higgins, 2004). It was

important to put emphasis on maintaining the NPO status of the perioperative patients. There was a need to address the current issue because canceling or delaying scheduled cases lead to patient dissatisfaction, unnecessary overtime for the staff, and underutilization of the procedure rooms (St. Jacques d Higgins, 2004). Noncompliance with NPO status is still the number one cause for patient safety issues leading to the delays of elective surgical procedures, decrease in the efficiency of the ambulatory surgery unit (ASU), and healthcare dollars waste (Kramer, 2000).

The JC (2007) noted that LHL, cultural barriers, and limited English proficiency prevents patients from understanding health care information and decreases effective communication. HL is also about building the skills of the patients to be able to understand written health materials (Nutbeam, 2006) because patients who are not able to comprehend well with their plan of care will not be able to comply with instructions (Dreger and Trembeck, 2002). Dreger and Trembeck (2002) added that health care providers who can communicate with their patients through LHL patient education materials resulted in improving the quality of care. Section 3 will discuss the project approach and evaluation for this quality improvement project.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this project was to decrease the number of cancelled or delayed surgical procedures due to LHL patient noncompliance with preoperative fasting instructions. The author developed a HL preoperative instruction sheet for use in the delivery of preoperative fasting instructions to patients identified as having LHL. The preoperative instructions sheet developed had diagrams, simple and plain choice of words, and bigger font size. The project consisted of developing a tool that was at a low HL level. An HL assessment of surgical patients was conducted utilizing the health literacy assessment tool named preoperative communication checklist (POCC) that the author developed. Patients identified with LHL were provided with the preoperative instruction tool. Compliance of the perioperative patients to the fasting regimen was measured by tallying the numbers of cancellations or delayed scheduled cases due to noncompliance with the fasting instructions pre-and post-implementation of the universal preoperative instruction sheet (Kramer, 2000).

The intent for the project was to gather retrospective data to identify all patients scheduled for surgery during the 3 months before the intervention commenced and then tabulate the percentage that did not comply with the fasting requirement, resulting in a cancelled or delayed procedure. The change was implemented by using the LHL assessments/instructions. Three months after initial implantation, the author reassessed the results to verify the percentage compliance of the entire population being served at the project facility site. The results were tabulated to the percentage that were in the LHL

study group. At the culmination of the project intervention, there was a pre-total and post-total set of data showing the population percentage compliance rate in the 3 months before the intervention and the population percentage compliance rate in the 3 months after the project intervention. The project ended with the desired result which reflected the overall percentage comparison before and after project implementation.

Health care providers understood that there was a need to emphasize appropriate preoperative health teachings or instructions to patient populations who have low or limited health literacy skill level. LHL is a nationwide problem that affects patients' ability to understand health related information or instructions. Preoperative instructions are important and are essential for patient compliance before they can undergo a needed procedure or surgery. It is important that patients comply with preoperative instructions to avoid health related complications.

Project Design/Methods

This project was a quality improvement project. The author utilized a 3-month pre-and 3-month post design to evaluate whether there was a decrease in the number of cancelled or delayed surgical cases using the POCC tool targeted to LHL patients. The project design allowed for assessment if there was a reduction of the number with the cancellations or delays for scheduled cases with patients who were provided with the POCC Tool. The outcome of the project measured the number of surgical procedures that were cancelled or delayed.

Population Sampling

I utilized nonprobability sampling where the patient participants were deliberately chosen to participate in the study. I selected the non-probability population sampling method since it was useful for pilot studies, case studies, qualitative research, or hypothesis development (Explorable.com, 2015). Thirty subjects identified as having LHL were included in this project. I used the convenience sampling method because the project was not relevant with the parameters of the entire population, and the sampling technique because it was cheap, quick and easy. Convenience sampling is a type of non-probability sampling technique where subjects are chosen because of their convenient accessibility and proximity to the project (Explorable.com, 2015). The subjects were chosen simply because they were easiest to recruit for the project.

Data Collection and Human Subject Protection

The facility selected for this project was the physician's office where the patient had the preliminary visit for planning the surgical procedure. The first step for this project was to obtain approval from the project facility and from the institutional review board (IRB) of the school where the author of this project attended. The Walden University IRB approval number for this study was 02-10-17-0334141. The partner site's agreement to provide data for the study was an operational oversight and data use agreement use when doctoral student has dual roles. This was appropriate when the researcher is involved in the original creation of the data as part of some other role at the site. As a DNP student analyzing QI data, this was appropriate for the program. After

both approvals were gained, the project director obtained the OR cancellation and delay records for the past three months at the project facility. The subjects were invited for screening for participation as they visited the surgeon's office for the planned surgical procedure. The Newest Vital Sign (NVS) was used to assess patients willing to be in the project and only those with LHL were included into the project. The assessment took 3-5 minutes and was conducted by the author in the physician's office. The NVS was reliable (Cronbach $\alpha > 0.76$ in English and 0.69 in Spanish) and correlated with the TOFHLA (Weiss, 2005). The next step was inviting the subjects with LHL to join the program, further discussing the project and obtaining informed consent from the patients after all questions were answered. Consenting took 10 minutes and was performed by this author. There was explanation on the purpose of the project, utilizing the POCC tool, for their preoperative instructions to promote patient understanding of the information delivered, as well as subject rights and options to withdraw from the project at any time. The identity of the patients remained anonymous and all information obtained was de-identified. Human subject protection was upheld through obtaining informed consent and by protecting data security and privacy. The data was gathered starting with demographic data on patients selected at the physicians' offices through convenience sampling and those who gave their permission was included into the project (Battaglia, 2013). The windshield survey method (Lee, 2013) is one strategy to gather information including the demographic attributes like language preference spoken, highest educational attained, and race within the community to get a picture of the living situation since this information will affect the health situation of the individuals. This was possible when the subjects

came to the clinic. The basic demographic data was then collected at the time when their level of literacy was being assessed. The subjects were then given the HL preoperative instructions and education delivered by the program author using the POCC tool designed for this project. The education took 5-10 minutes. For the outcome data, the subjects were assessed on the day of the procedure as to whether they maintained their NPO status, and whether this resulted in a delay or a cancellation.

Data were collected confidentially by the project author using de-identified coding. All consents and data was stored securely by the author in a locked cabinet in a locked office for a period of 5 years then will be destroyed. All data was entered into a password protected computer also store in the authors locked office. The project author is the only person who has access to the data.

Program Evaluation

Evaluation is the systematic application of scientific methods to assess the design, implementation, improvement or outcomes of a program. The author used the impact evaluation approach to determine the outcome of this project using percent change from pre-to post method. The pre-period of the intervention measured against the post period of the project progress where the health literate preoperative instruction sheet was used to assess whether there was a decrease of cancellations and delays with surgical procedures. Both cancellations and delays was collected to show collective result of the patient's noncompliance to adhere with the fasting regimen due to LHL. The data was analyzed based upon the number of cancellations and delays of scheduled cases due to the patient being unable to maintain the NPO regimen pre-post HL education

implementation. Demographic data will be assessed using percent, frequency, and mean and all results will be displayed in narrative, charts, and graphs. The project focused on measuring whether the preoperative education utilizing the POCC tool enabled the patients to understand the instructions provided. The tool did not verify whether the subjects understood the instructions or not, it only served its purpose when the subjects were able to maintain their fasting regimen and reported that the planned surgical procedure was carried out. The outcome of the project looked at the correlation between assessing the HLSL of the patients and the cancellations and delayed cases.

Summary

The current project advanced nursing practice through enhancing patient understanding of the preoperative instructions for the surgical patient. This resulted in decreased cancellations of procedures for the healthcare facility in the operating room and doctors' offices that performs procedures. In today's patient-centered health care environment, perianesthesia nurses need to be aware of the many patients who may have LHL (Ross, 2013). All individuals, but especially those with basic or low-basic health literacy need to be assessed to confirm literacy level to provide health teaching or clarification with the instructions prior to surgery or procedures. Assessment with NVS HL assessment tool and HL appropriate preoperative instructions delivered with the POCC tool enabled patients to understand preoperative instructions and comply with the fasting recommendations leading to a decrease in cancellations and delays of procedures. Section 4 continues with the results of the program and determines success in answering the project questions and achieving a positive outcome.

Section 4: Findings and Recommendations

Introduction

The purpose of this project was to assess the number of cancelled or delayed surgical procedures due to LHL patient noncompliance with preoperative fasting instructions. The author developed a HL preoperative instruction sheet for use in the delivery of preoperative fasting instructions to patients identified as having LHL. The project consisted of developing the POCC tool that was at a low HL level. An HL assessment of surgical patients was conducted using the POCC health literacy assessment tool. Patients who were identified with LHL were provided with the preoperative instruction tool. Compliance of the perioperative patients to the fasting regimen was measured by the number of cancellations or delayed scheduled cases due to noncompliance.

The intent of the project was to gather data to identify patients scheduled for surgery during the 3 months before the intervention commenced that did not comply with the fasting requirement, resulting in a cancelled or delayed procedure. The result was compared to the number of patients who did not comply with the fasting requirement resulting in a cancelled or delayed procedure post intervention. The practice change was implemented by using the LHL assessments/instructions.

At the culmination of the project intervention, there was a pre-total and post-total set of data showing the population percentage compliance rate in the 3 months before the intervention and the population percentage compliance rate in the 3 months after the project intervention. There was a 16.67% decrease in the cancellation rate due to

noncompliance with the fasting regime after project implementation. Health care providers understand that there is a need to emphasize appropriate preoperative health teachings or instructions to patient populations who have LHL skill level. LHL in the United States is a nationwide problem that affects patients' ability to understand health related information or instructions. Preoperative instructions are important and are essential for patient compliance before they can undergo a needed procedure or surgery. It is important that patients comply with preoperative instructions to avoid health related complications. Therefore, if patients having LHL level cannot understand preoperative instructions, they may not be able to comply with recommendations and have needed treatments. This project demonstrates a successful model for addressing LHL using preoperative health teaching instructions.

Evaluation/Findings and Discussion

Surgical patients are at higher risk of serious complications and poor patient care outcomes when they do not comply with the pre-operative instructions, especially regarding fasting requirements. Additionally, cancelations disrupt busy surgical schedules and often waste valuable health care resources. One reason why patients do not comply with pre-operative instructions is they may not understand the instructions are not delivered at their health literacy level. In this project, I addressed this gap in practice and focused on the problem of pre-operative cancellations and delays due to noncompliance of the fasting requirements by proving health literate instructions to the pre-surgical patient. The purpose of this project was to assess the numbers of cancelled or delayed surgical procedures due to LHL patient noncompliance with the preoperative fasting

instructions. The objective was to provide health literate pre-operative instructions to the LHL surgical patient. The goal of the project was to determine whether health literate preoperative instructions regarding fasting regimen with the LHL preoperative patient would decrease cancellations and delays of patient procedure. The evaluation of the project is presented to support findings supporting importance of delivering health literate pre-operative instructions to decrease non-compliance of the fasting requirements.

This project had a total of 30 patients of whom 13 were women and 17 were men (see Appendix A). The mean age was 51 (see Appendix B). Regarding race, nine patient participants were Whites, seven were Asians, eight were Blacks, and six were Pacific Islander origin (see Appendix C). There were thirty total procedures performed during the 3 months before intervention. There were five total procedures cancelled in the 3 months pre- intervention. The cancellation rate was 16.67%. During the three months after project implementation, 10 procedures were performed. There were no cancellations due to noncompliance of the pre-procedure instructions post intervention. This resulted in a 16.67% reduction in the cancellation rates post intervention (See Appendix D). Therefore, the project outcome showed a 16.67% decrease in the cancellation rate providing support for delivering health literate pre-operative instructions.

According to Brady and Stuart (2003), fasting before induction of general anesthesia aims to reduce the volume and acidity of stomach contents while undergoing a procedure, thus, reducing the risk of aspiration. Recent recommendations are being suggested in fasting policy from the standard nothing by mouth from approach to more relaxed policies which allowed a period of restricted fluid intake up to a few hours before

surgery. The author further stated that the evidences governing these guidelines however, was spread out all over the print out materials, in many languages, used in many means and methodologies to evaluate fasting regimens that differed in duration and the type and volume of intake allowed during a restricted fasting period. Practice has been slow to change (Brady and Stuart, 2003). The findings of this project will benefit the nursing practice in the operating room setting. The fasting regimen prior to a planned surgical procedure is a necessity to avoid unnecessary injury to the patient. This can also catapult an increase in efficiency in the operating room without delays or cancellations. There will be no waste of surgical supplies and healthcare resources, and the effort of the staff will also not be wasted. The operating room will be utilized to the maximum capacity knowing that the room is used in its entire time. In summary, the project concluded that there is a need to assess the HLSL of the surgical patients to make sure that when the patients received preoperative health instructions, they will have a complete understanding of what is expected of them. The project results showed that delays or cancellations in the OR is minimized when the patients understand the instructions given to them at their health literacy level.

Implications

Policy

Public policy holds the key in targeting LHL and its consequences (Vernon and colleagues, 2007). Furthermore, the failure to resolve high costs in terms of individual health, health care spending, and the economic well-being of the nation is a must since its adverse effects will result in massive waste or inappropriate distribution of dollar expenses.

Addressing the HL problem also resolved issues with several important policy directions for reducing the economic, social, and health burdens of literacy in general (Vernon, Trujillo, Rosenbaum, and DeBuono, 2007). Based on the results of the project, the healthcare provider needs to put emphasis on determining the HLSL of all qualified surgical patients to make sure that once they received any health instructions, they will be able to understand the specifics of the preoperative communication checklist to avoid patient noncompliance. The project results showed that with the intervention provided to the selected surgical patients resulted to zero cancellations nor delays of the scheduled surgeries. The patients understood the preoperative instructions provided to them resulting in compliance with the fasting regimen. These events led to zero delays nor cancellations of scheduled surgical cases.

Practice

This project adds to the evidence of the importance of coupling pre-operative fasting instructions with HL instructions. The American Board of Anesthesiology recommends that patients shall not eat solid food for at least 8 hours prior to a procedure, and shall not drink clear liquids for at least 2 hours prior their scheduled surgical procedure. The American Board of Anesthesiology recommends against liquid NPO periods greater than eight hours (Maltby, 2016). Extended periods greater than 12 hours are still contraindicated Maltby (2016) stated that the minimum fasting times prior to surgery have long been debated. The first suggestion came from British anesthetists stating that patients should be NPO from midnight. However, since then, the American Society of Anesthesiologists (ASA), followed by the Association of Anesthetists of Great

Britain and Ireland (AAGBI), recommends new fasting guidelines for the minimum fast prior to surgery. This practice was recommended by Canadian anesthesiologists who realized that drinking clear fluids two hours prior to surgery decreased pulmonary aspiration compared to those NPO since midnight (See Appendix F). This shows the importance of adhering to fasting regimes and this project couples health literacy and the pre-operative instructions, allowing for better patient understanding and compliance to the fasting requirements.

Social Change

Addressing health literacy has great potential for positive social change for society due to the improved understanding of information and the improved understanding of how to interpret this information and take well-informed health care actions. Vernon, Trujillo, Rosenbaum, and DeBuono (2007) stated that tackling the issue with LHL could produce big savings and better health. The two pillars of appropriate healthcare are coverage and access. The problem with the lack of steady healthcare coverage and reliable healthcare access can lead to LHL (Vernon, Trujillo, Rosenbaum, and DeBuono, 2007). Cornette (2009) stated that the National Institute for Literacy (NIFL) views literacy to involve not only the individual's ability to read but also the ability to understand. NIFL defined literacy as the capacity of an individual to read, write, speak in English, compute, and solve problems, at levels of proficiency important to function on the job. Cornette (2009) added that the Healthy People 2020 adopted a broad definition of literacy which definition was the degree to which individuals can gather, synthesize, and comprehend basic health information and services imperative to make justifiable health care decisions. Vernon and

colleagues (2007) added that recent studies noted the link between the LHL among U.S. adults and health outcomes with increased medical expenditures.

Other positive social change form improving HL came in the form of resource savings as improving HL can decrease unnecessary use of health care resources and improves patient's self-care ability, leading to improved healthcare of the population. Baur (2009) noted that the National Action Plan to Improve Health Literacy was a framework that nurses can utilize to identify and address HL barriers that affect patient care and health outcomes. The nurse has a unique relationship to HL because nurses were on the front lines of patient care, being with patients more than any other healthcare provider. Therefore, the project produced positive social change by assisting how individuals value health through taking charge of their own health needs through improved HL.

Strength and Limitations of the Project

The strength of the project was geared towards the fact that goal was improving health literacy awareness among the patient population. Everyone was affected with the care that we provide to the perioperative individuals throughout the healthcare system. When it involves patient perception and HLSL, it affects the number of delays and cancellations of scheduled operative procedures because this can lead to noncompliance with the fasting regimen that could be detrimental to their health. The limitations considered for the project were using the tool that was only prepared in English and Spanish language as the forms available to conduct assessment on their health literacy skill level were written and published in English and Spanish only. The project utilized small sample size and was conducted at only one practice site, which were the limitations for the

project. Another limitation was using the convenience sample and the limitation in generalization and inference making about the entire population. In conclusion, the project's strength was focused on improving health literacy awareness. In so doing, patients were provided with interventions that resulted in zero delays and cancellations of planned surgical procedures. Even though the preoperative communication checklist tool was only written in English and Spanish, the project could show that the interventions were effective.

Analysis of Self

I saw myself with the role of a healthcare professional enjoying while learning as I went with the endeavors of conducting and summarizing the results of my project. I am so excited to share the results of my research project because the problem still lingers and exists in my place of work. My long-term professional goal is to put all the knowledge that I learned from this Doctor in Nursing Practice (DNP) experience particularly my research project into my practice. I would also share the results of my project with my current employer so that they could also reap the benefits thereby promoting and maintaining patient safety and satisfaction with the service we render. The journey completing this project had been very long and winding for me. There were bumps on the road and challenges that I tackled with the assistance and encouragement from my project coordinator. I am so blessed to get through all adversities that life must offer. It has been a wonderful path that I took and I will do it again, to serve humanity.

Summary

It was important that an assessment was conducted to determine the HL skill level of patients when delivering education and preoperative instructions. The patients were the ultimate decision-makers about their health. The time the healthcare providers spend with them discussing HL instructions, information, and education empowers patient with the knowledge to decide the fate of their health. The surgical patients expected to receive appropriate information at a comprehension level that they could understand because cultural awareness was the epitome and the heart of HL. The healthcare provider needed to assess the ways of measuring the depth of the patient's HLSL.

Cancellations of scheduled cases were on the rise in the current health care industry. It was important to put emphasis on maintaining the NPO status of the perioperative patients. LHL, cultural barriers, and limited English proficiency prevent patients from understanding health care information and decreases effective communication. The current project advanced nursing practice through enhancing patient understanding of the preoperative instructions. This resulted in decreased cancellations and delays of procedures for the healthcare facility in the operating room and doctors' offices that performs procedures. All individuals, but especially those with basic or low-basic health literacy were assessed to confirm literacy level to provide health teaching or clarification with the instructions prior to surgery or procedures. Assessment with NVS HL assessment tool and HL appropriate preoperative instructions delivered with the POCC tool enabled patients to understand preoperative instructions and complied with the fasting recommendations leading to a decrease in cancellations and delays of procedures.

The current project advanced nursing practice through enhancing patient understanding of the preoperative instructions for the surgical patient. This resulted in decreased cancellations and delays of procedures for the healthcare facility in the operating room and doctors' offices that performs procedures. In today's patient-centered health care environment, perianesthesia nurses need to be aware of the many patients who may have LHL (Ross, 2013). All individuals, but especially those with basic or low-basic health literacy were assessed to confirm literacy level to provide health teaching or clarification with the instructions prior to surgery or procedures. Assessment with NVS HL assessment tool and HL appropriate preoperative instructions delivered with the POCC tool enabled patients to understand preoperative instructions and comply with the fasting recommendations leading to a decrease in cancellations and delays of procedures.

It is important that an assessment be conducted to determine the HL skill level of patients when delivering education and preoperative instructions. The patients are the ultimate decision-makers about their health. The time the healthcare providers spend with them discussing HL instructions, information, and education empowers patient with the knowledge to decide the fate of their health. The surgical patients expect to receive appropriate information at a comprehension level that they can understand because cultural awareness is the epitome and the heart of HL. The healthcare provider needs to assess the ways of measuring the depth of the patient's HLSL. Cancellations of scheduled cases are on the rise in the current health care industry. It is important to put emphasis on maintaining the NPO status of the perioperative patients. LHL, cultural barriers, and

limited English proficiency prevent patients from understanding health care information and decreases effective communication.

The current project will advance nursing practice through enhancing patient understanding of the preoperative instructions for the surgical patient. This will result in decreased cancellations and delays of procedures for the healthcare facility in the operating room and doctors' offices that performs procedures. All individuals, but especially those with basic or low-basic health literacy will need to be assessed to confirm literacy level to provide health teaching or clarification with the instructions prior to surgery or procedures. Assessment with NVS HL assessment tool and HL appropriate preoperative instructions delivered with the POCC tool may enable patients to understand preoperative instructions and comply with the fasting recommendations leading to a decrease in cancellations and delays of procedures.

Section 5: Dissemination Plan

Dissemination

A project summary and evaluation report has been directly disseminated to all stakeholders and clinical staff in my practice environment. It is important that an assessment be conducted to determine the health literacy skill level of patients when delivering education and preoperative instructions. The time the healthcare providers spend with them discussing health literate instructions, information, and education will empower patient with the knowledge to decide the fate of their health. The surgical patients expect to receive appropriate information at a comprehension level that they can understand. A health care provider needs to assess the ways of measuring the depth of the patient's HLSL. The JC's accreditation standards underscore the fundamental right and need for patients to receive information, both oral and written, regarding their care in a way in which they can fully comprehend (National Network of Libraries of Medicine, 2013).

It is important to emphasize maintaining the NPO status of perioperative patients. There was a need to address the current issue because canceling or delaying scheduled cases leads to patient dissatisfaction, unnecessary overtime for the staff, and underutilization of procedure rooms (St. Jacques d Higgins, 2004). Noncompliance with NPO status is still the number one cause of patient safety issues leading to delays in elective surgical procedures, decrease in the efficiency of the ambulatory surgery unit (ASU), and waste in health care dollars (Kramer, 2000).

The JC (2007) noted that LHL, cultural barriers, and limited English proficiency prevent patients from understanding health care information and decreases effective communication. HL is also about building the skills of patients to be able to understand written health materials (Nutbeam, 2006) because patients who are not able to fully comprehend their plan of care will not be able to comply with instructions (Dreger & Trembeck, 2002). Dreger and Trembeck (2002) added that health care providers who can communicate with their patients through LHL patient education materials contribute in improving the quality of care.

The current project advanced nursing practice by enhancing surgical patients' understanding of preoperative instructions. This resulted in decreased cancellations of procedures for the healthcare facility in my project study, specifically in the operating room and doctors' offices where procedures are performed. In today's patient-centered health care environment, perianesthesia nurses need to be aware that many patients may have LHL (Ross, 2013). All individuals, but especially those with basic or low-basic health literacy, need to be assessed to confirm literacy level to provide health teaching or clarification with the instructions prior to surgery or procedures (Ross, 2013). Assessment with NVS HL assessment tool and HL appropriate preoperative instructions delivered with the POCC tool at my project site enabled patients to understand preoperative instructions and comply with the fasting recommendations leading to a decrease in cancellations and delays of procedures.

Project Summary and Evaluation Report

Introduction

Adherence to the fasting regimen protocol by preoperative patients had been an issue for many years now (Cravero, 2015). However, those with low health literacy were not able to understand given instructions and therefore were not able to comply with the necessary preoperative regimen. Health literacy was introduced into healthcare literature in the early 1990s but had not become part of mainstream healthcare literature until recently. The modernization in healthcare and the move for patient health self-management resulted in focusing on the capability or disability of individuals to comprehend and made informed decisions about their healthcare (Cutilli, and Bennett, 2009).

Meeting the health literacy demands of our society is dependent on understanding the patient's health literacy level. The National Assessment of Adult Literacy (NAAL) provides information about the health literacy abilities/skills of the American population (U.S. Department of Education Institute of Education Sciences National Center for Education Statistics, 2010). NAAL estimate that 30 million adults struggle with basic reading tasks (U.S. Department of Education Institute of Education Sciences National Center for Education Statistics, 2010). NAAL also found that only 12 percent of consumers have proficient Health Literacy Skill Level (HLSL). The conclusion was that nine out of ten adults lack the skills needed to manage their health. Limited Health Literacy (LHL) affected a person's ability to understand health care information and education, located health care providers and services, filled out health forms, and shared

personal health information with providers. The survey conducted by the NAAL showed that there were over 90 million Americans with difficulty comprehending basic health information (U.S. Department of Education Institute of Education Sciences National Center for Education Statistics, 2010).

Health information comprehension started with understanding print information to follow medication instructions, identifying signs and symptoms of diseases, and engaging in self-care behaviors. The report mentioned four health literacy (HL) levels: low basic level, basic level, intermediate level, and proficient level (Pfizer, 2006). The population with the low health literacy (LHL) skill level was the focus of this project to assure their safety while seeking health care. The project excluded the other subjects with basic, intermediate, and proficient levels.

There was a need to put emphasis on the preoperative instructions particularly the fasting regimen due to the risk of aspiration. According to the American Society of Anesthesiologists (2011), preoperative fasting is the designated length of time prior to a procedure when patients are not to have any oral intake of food or liquids. These practice guidelines were recommended to decrease the occurrence of perioperative pulmonary aspiration; aspiration of gastric contents. Pulmonary aspiration is the most serious complication associated with use of medications to sedate or place patients under general anesthesia. Therefore, noncompliance with the fasting regimen may lead to complications or death (Agency for Healthcare Research and Quality, 2011). There was also a relationship between patients who could not maintain the fasting regimen and low health literacy skill level, translating to an alarming rise in the number of cancellations and

delays in the perioperative areas. It was noted that the delays lead to a negative effect on the efficacy of the perioperative department, and patient throughput (Wong, Khu, Kaderali, and Bernstein, 2010). A delay in starting the first case would cause a domino effect resulting to subsequent delays that greatly affects patient flow and resource utilization. To improve patient safety and decrease the number of cancelled or delayed scheduled surgical cases, it was necessary to develop best practices and patient education to improve patient outcomes. This was accomplished through provision of health literate preoperative instructions like NPO guidelines, which was the focus of the project.

Problem Statement

Serious or fatal complications can occur when patients do not comply with preoperative instructions due to LHL. Healthcare providers understood that there was a need to emphasize appropriate preoperative health teachings or instructions to patient populations who had low or LHL skill level. LHL was a nationwide problem that affected patients' ability to understand health related information or instructions. Preoperative instructions were important and essential for patient compliance before they can undergo a needed procedure or surgery. It was important that patients comply with pre-operative instructions to avoid health related complications. Patients had difficulty complying when they had LHL levels and/or the information had not been presented to them according to their HL level. Therefore, this project evaluated whether identifying those with LHL and providing health literate pre-operative instructions, especially regarding the fasting requirements, could improve cancellations and delays of procedures.

Purpose and Objectives

The purpose of this project was to decrease cancelled or delayed surgical procedures due to LHL patient noncompliance with the preoperative fasting instructions. The objective was to provide health literate pre-operative instructions to the LHL surgical patient. The goal of the project was to determine whether health literate preoperative instructions regarding fasting regimen with the LHL preoperative patient would decrease cancellations and delays of patient procedure. An HL preoperative instruction sheet was developed for use in the delivery of the preoperative fasting instructions to patients identified as having LHL. The compliance of the preoperative patients to the fasting regimen was measured by the number of cancellations or delayed scheduled cases due to noncompliance with the fasting instructions pre-and post-implementation of the LHL preoperative instruction sheet (Kramer, 2000). The project consisted of developing the tool that is at a low HL level. This tool consisted of an instruction sheet with images, a larger font size for easy reading, and clear phrases making the instruction sheet understood by the patient with a LHL level (Pfizer, 2011). An HL assessment of the surgical patient was conducted utilizing the health literacy assessment tool called preoperative communication checklist (POCC) (Pfizer, 2010). Patients were assessed for health literacy level and those who were identified with LHL were provided with the LHL preoperative instruction tool. Patients not showing LHL were given the standard instructions. The subjects identified with LHL were invited to participate on voluntary basis. The POCC tool was utilized during the preoperative phase including instructions

with emphasis on fasting. The goal was to decrease the delay and cancellation rates of patients with LHL.

Project Question

Health literacy is an important factor to assess and consider when providing preoperative patient instructions and education. LHL can cause a patient not to understand instructions and can lead to serious complications or cancellations of needed surgical procedures. The project question asked whether health literate preoperative instructions could decrease the number of cancelled or delayed surgical procedures. The literacy level of the patient has direct correlation with whether the patient understands the preoperative instructions pertaining to the preoperative fasting regimen. Non-adherence to the fasting regimen is a main cause of surgical cancellations. This quality improvement project aimed to assess the effectiveness of health literate patient instructions.

Project Design/Methods

This project was a quality improvement project. The method utilized a 3-month pre-and 3-month post design to evaluate whether there was a decrease in the cancelled or delayed surgical cases using POCC tool targeted to LHL patients. The project design allowed assessment of whether there was the reduction of cancellations or delays in the perioperative area for scheduled cases with LHL patients who were provided with the LHL POCC tool. The outcome of the project was measured whether there was a decrease in cancellations and delays of surgical procedures.

Population Sampling

The author utilized the non-probability sampling where the individuals were deliberately chosen to participate in the study. The author of this project selected the non-probability population sampling method since it was useful for pilot studies, case studies, qualitative research, and for hypothesis development (Explorable.com, 2015). Thirty subjects identified as having LHL were included in this project. The author used the convenience sampling method because the project was not interested in the parameters of the entire population, and the sampling technique because it was cheap, quick and easy. Convenience sampling was a type of non-probability sampling technique where subjects were chosen because of their convenient accessibility and proximity to the project. The subjects were chosen just because they were easiest to recruit for the project.

Data Collection

The facility selected for this project was the physician's office where the patients had the preliminary visit for planning the surgical procedure. The first step for this project was getting the approval from the project facility and from the institutional review board (IRB) of the school where the author of this project attended. After approvals was gained, the project director obtained the OR cancellation and delay records for the past three months at the project facility. Then subjects were invited for screening for participation as they visited the surgeon's office for the planned surgical procedure. All patients having a surgical procedure were invited. The Newest Vital Sign (NVS) was used to assess patients willing to be in the project and only those with LHL were included

into the project. The assessment took 3-5 minutes and was conducted by the author in the physician's office confidentially. The NVS was reliable (Cronbach $\alpha > 0.76$ in English and 0.69 in Spanish) and correlated with the TOFHLA (Weiss, 2005). The next step was inviting the subjects with LHL to join the program, further discussing the project with the patients, and then consents were obtained. Consenting took 10 minutes and was performed by this author. There was explanation on the purpose of the project, utilizing the POCC tool, for their preoperative instructions to promote patient understanding of the information delivered, as well as subject rights and options to withdraw from the project at any time. The identity of the patients remained anonymous and all information obtained was de-identified.

The data was gathered starting with demographic data on patients selected at the physicians' offices through convenience sampling and those who gave their permission was included into the project (Battaglia, 2013). The windshield survey method (Lee, 2013) is one strategy to gather information including the demographic attributes like language preference spoken, highest educational attained, and race within the community to get a picture of the living situation since this information will affect the health situation of the individuals. This was possible when the subjects came to the clinic. The basic demographic data was then collected at the time when their level of literacy was being assessed. The subjects were then given the HL preoperative instructions and education delivered by the program author using the POCC tool designed for this project. The education took 5-10 minutes. For the outcome data, the subjects were assessed on the day

of the procedure as to whether they maintained their NPO status, and whether this resulted in a delay or a cancellation.

Data were collected confidentially by the project author using de-identified coding. All consents and data was stored securely by the author in a locked cabinet in a locked office for a period of 5 years then will be destroyed. All data was entered into a password protected computer also store in the authors locked office. The project author is the only person who will have access to the data once received.

Evaluation/Findings and Discussion

Surgical patients are at higher risk for serious complications and poor patient care outcomes when they do not comply with the pre-operative instructions, especially regarding fasting requirements. Additionally, cancelations disrupt busy surgical schedules and often times waste in valuable health care resources. One reason patients do not comply with the pre-operative instructions is that patients may not understand them if instructions are not delivered on the patient's health literacy level. Therefore, this project addressed this gap in practice and focused on the problem of pre-operative cancellations and delays due to non-compliance of the fasting requirements by proving health literate instructions to the pre-surgical patient. The purpose of this project was to decrease cancelled or delayed surgical procedures due to LHL patient noncompliance with the preoperative fasting instructions. The objective was to provide health literate pre-operative instructions to the LHL surgical patient. The goal of the project was to determine whether health literate preoperative instructions regarding fasting regimen with the LHL preoperative patient would decrease cancellations and delays of patient

procedure. The evaluation of the project is presented to support findings supporting importance of delivering health literate pre-operative instructions to decrease non-compliance of the fasting requirements.

This project had a total of 30 patients of whom thirteen (13) were women and 17 were men (See Appendix A). The mean age was 51 (See Appendix B). Race varied from White, Asian, Black, and Pacific Islander origin of whom nine (9) were Whites, seven were Asians, eight were Blacks, and six were Pacific Islander origin (See Appendix C). There were thirty total procedures performed during the three months before intervention. There were 5 total procedures cancelled in the three months pre-intervention. The cancellation rate was 16.67%. During the three months after project implementation after project implementation, there were 10 procedures performed. There were no cancellations due to noncompliance of the pre-procedure instructions post intervention. This resulted in a 16.67% reduction in the cancellation rates post intervention (See Appendix D). Therefore, the project outcome showed a 16.67% decrease in the cancellation rate providing support for delivering health literate pre-operative instructions.

According to Brady and Stuart (2003), fasting before induction of general anesthesia aims to reduce the volume and acidity of stomach contents while undergoing a procedure, thus, reducing the risk of aspiration. Recent recommendations are being suggested in fasting policy from the standard nothing by mouth from approach to more relaxed policies, which allowed a period of restricted fluid intake up to a few hours before surgery. The author further stated that the evidences governing these guidelines

however, was spread out all over the print out materials, in many languages, used in many means and methodologies to evaluate fasting regimens that differed in duration and the type and volume of intake allowed during a restricted fasting period. Practice has been slow to change (Brady and Stuart, 2003). The findings of this project will benefit the nursing practice in the operating room setting. The fasting regimen prior to a planned surgical procedure is a necessity to avoid unnecessary injury to the patient. This can also catapult an increase in efficiency in the operating room without delays or cancellations. There will be no waste of surgical supplies and healthcare resources, and the effort of the staff will also not be wasted. The operating room will be utilized to the maximum capacity knowing that the room is used in its entire time. In summary, the project concluded that there is a need to assess the HLSL of the surgical patients to make sure that when the patients received preoperative health instructions, they will have a complete understanding of what is expected of them. The project results showed that delays or cancellations in the OR is minimized when the patients understand the instructions given to them at their health literacy level.

Implications

Policy

Public policy holds the key in targeting LHL and its consequences (Vernon and colleagues, 2007). Furthermore, the failure to resolve high costs in terms of individual health, health care spending, and the economic well-being of the nation is a must since its adverse effects will result in massive waste or inappropriate distribution of dollar expenses. Addressing the HL problem also resolved issues with several important policy directions

for reducing the economic, social, and health burdens of literacy in general (Vernon, Trujillo, Rosenbaum, and DeBuono, 2007). Based on the results of the project, the healthcare provider needs to put emphasis on determining the HLSL of all qualified surgical patients to make sure that once they received any health instructions, they will be able to understand the specifics of the preoperative communication checklist to avoid patient noncompliance. The project results showed that with the intervention provided to the selected surgical patients resulted to zero cancellations nor delays of the scheduled surgeries. The patients understood the preoperative instructions provided to them resulting in compliance with the fasting regimen. These events led to zero no delays or cancellations of scheduled surgical cases.

Practice

This project adds to the evidence of the importance of coupling pre-operative fasting instructions with HL instructions. The American Board of Anesthesiology recommends that patients shall not eat solid food for at least 8 hours prior to a procedure, and shall not drink clear liquids for at least 2 hours prior their scheduled surgical procedure. The American Board of Anesthesiology recommends against liquid NPO periods greater than eight hours (Maltby, 2016). Extended periods greater than 12 hours are still contraindicated. Maltby (2016) stated that the minimum fasting times prior to surgery have long been debated. The first suggestion came from British anesthetists stating that patients should be NPO from midnight. However, since then, the American Society of Anesthesiologists (ASA), followed by the Association of Anesthetists of Great

Britain and Ireland (AAGBI), recommends new fasting guidelines for the minimum fast prior to surgery. This practice was recommended by Canadian anesthesiologists who realized that drinking clear fluids two hours prior to surgery decreased pulmonary aspiration compared to those NPO since midnight (See Appendix F). This shows the importance of adhering to fasting regimes and this project couples health literacy and the pre-operative instructions, allowing for better patient understanding and compliance to the fasting requirements.

Social Change

Addressing health literacy has great potential for positive social change for society due to the improved understanding of information and the improved understanding of how to interpret this information and take well-informed health care actions. Vernon, Trujillo, Rosenbaum, and DeBuono (2007) stated that tackling the issue with LHL could produce big savings and better health. The two pillars of appropriate healthcare are coverage and access. The problem with the lack of steady healthcare coverage and reliable healthcare access can lead to LHL (Vernon, Trujillo, Rosenbaum, and DeBuono, 2007). Cornette (2009) stated that the National Institute for Literacy (NIFL) views literacy to involve not only the individual's ability to read but also the ability to understand. NIFL defined literacy as the capacity of an individual to read, write, speak in English, compute, and solve problems, at levels of proficiency important to function on the job. Cornette (2009) added that the Healthy People 2020 adopted a broad definition of literacy which definition was the degree to which individuals can gather, synthesize, and comprehend basic health information and services imperative to make justifiable health care decisions. Vernon and

colleagues (2007) added that recent studies noted the link between the LHL among U.S. adults and health outcomes with increased medical expenditures.

Other positive social change form improving HL came in the form of resource savings as improving HL can decrease unnecessary use of health care resources and improves patient's self-care ability, leading to improved healthcare of the population. Baur (2009) noted that the National Action Plan to Improve Health Literacy was a framework that nurses can utilize to identify and address HL barriers that affect patient care and health outcomes. The nurse has a unique relationship to HL because nurses were on the front lines of patient care, being with patients more than any other healthcare provider. Therefore, the project produced positive social change by assisting how individuals value health through taking charge of their own health needs through improved HL.

Strength and Limitations of the Project

The strength of the project was geared towards the fact that goal was improving health literacy awareness among the patient population. Everyone was affected with the care that we provide to the perioperative individuals throughout the healthcare system. When it involves patient perception and HLSL, it affects the number of delays and cancellations of scheduled operative procedures because this can lead to noncompliance with the fasting regimen that could be detrimental to their health.

The limitations considered for the project were using the tool that was only prepared in English and Spanish language as the forms available to conduct assessment on their health literacy skill level were written and published in English and Spanish only. The project utilized small sample size and was conducted at only one practice site, which were

the limitations for the project. Another limitation was using the convenience sample and the limitation in generalization and inference making about the entire population. In conclusion, the project's strength was focused on improving health literacy awareness. In so doing, patients were provided with interventions that resulted in zero delays and cancellations of planned surgical procedures. Even though the preoperative communication checklist tool was only written in English and Spanish, the project could show that the interventions were effective.

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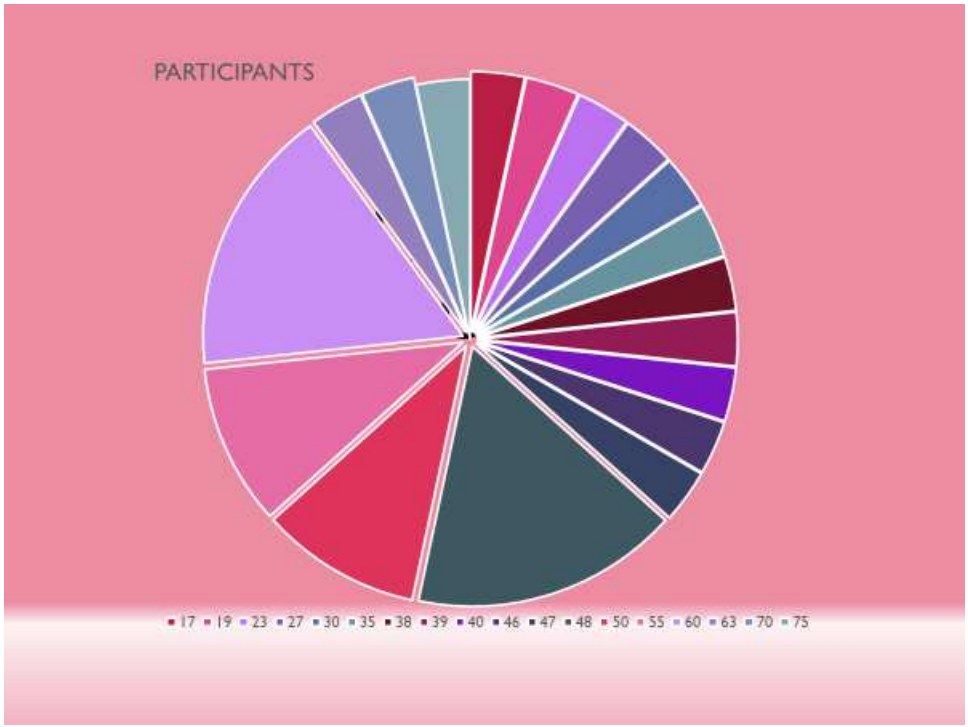
Appendix A: Ages of Participants



Participant ages ranged from 17 to 75. They included one participant of each of the following ages (exceptions are noted in parentheses): 17, 19, 23, 27, 30, 35, 38, 39, 40, 46, 47, 48 (5), 50 (3), 55 (3), 60 (5), 63, 70, and 75. The mean age was 51. Parental consent was obtained for the 17-year-old patient.

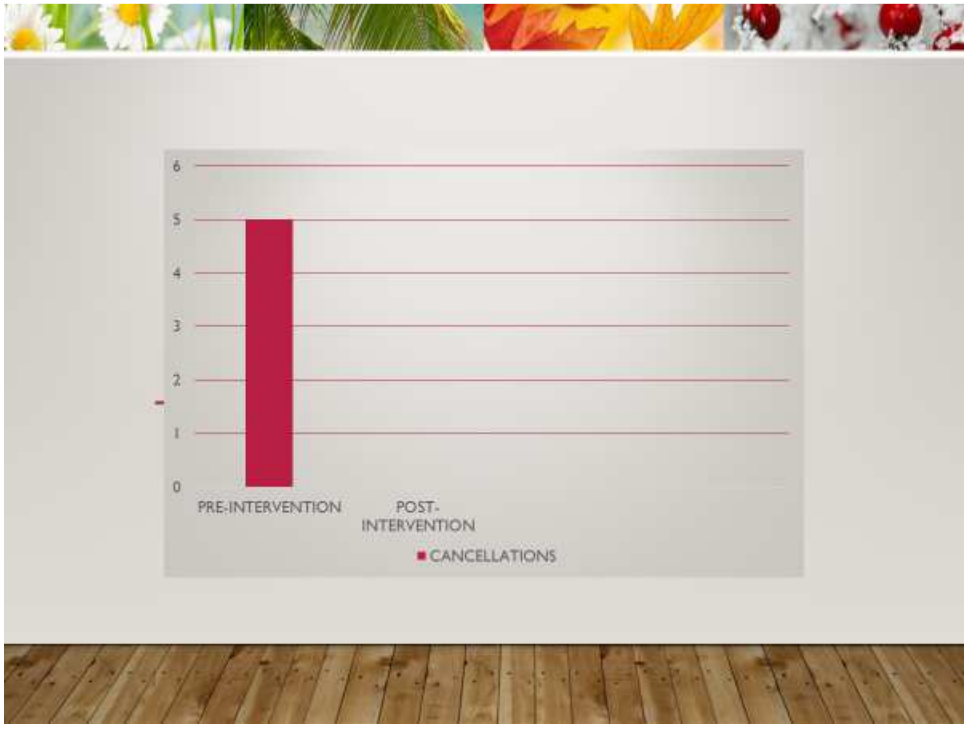
Appendix B: Gender of Participants

There were 13 women participants and 17 men participants.

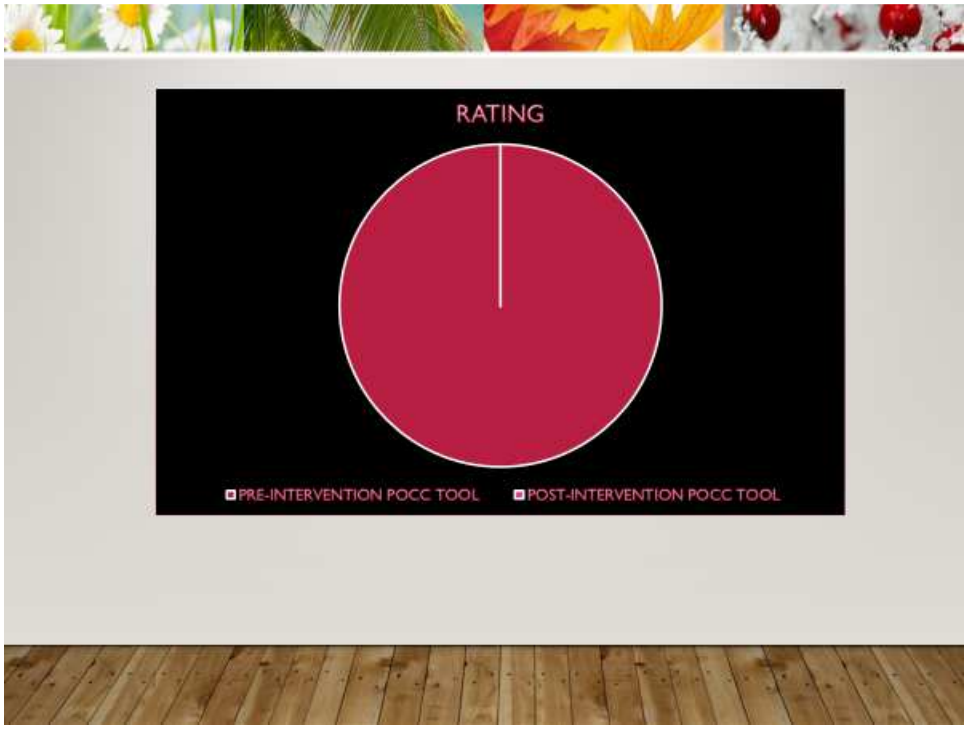
Appendix C: Race of Participants

Participants included nine Whites, seven Asians, eight Blacks, and six Pacific Islanders.

Appendix D: Preoperative Instruction Compliance and Number of Cancellations Pre and Post Project Implementation



Appendix E: Number of Cancellations



Of the 30 procedures, five were cancelled due to patient noncompliance with preprocedural instructions.

Appendix E: Fasting Times